TEICNIUIL-PRIORY CONSULTING ENGINEERS Ltd

Construction Environmental Management Plan (CEMP)

Incorporating Resource Management Plan

Project: Proposed Housing Development at Ardshanvooley, Park Rd, Killarney

Client: Wrightwood Development Ltd

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Date	Revision	Issued For	Prepared By	Checked By
		Planning	MC /UC	MC

Contents

1.0 Preamble:

Teicniuil-Priory Consulting Engineers Ltd have been commissioned to carry out a Construction Environmental Management Plan (CEMP), on behalf of Wrightwood Development, (The Client) at proposed development site, located at Archsahnavooley , Killarney, Co. Kerry, as per the site location map, in fig 1, below.

The project consists of a Large Residential Development (LRD) proposal comprising 124No dwelling units, on a site area of 2.23 Ha.

This Construction Environmental Management Plan (CEMP) provides a definitive approach to development and environmental management during the construction phases, at this site. This report provides the methodology for appropriate environmental procedures to be taken during the project, and outlines the obligations and responsibilities that will apply to all contractors and sub-contractors on-site, during the construction process.

The CEMP describes the control measures required to avoid, or minimize any potential environmental impacts on the site and the surrounding area, to mitigate against any negative impact on the local community.

The CEMP has been prepared for the planning phase of this project. It is intended to be a 'live' document, to be developed and updated throughout the construction process, to reflect any amendments or requirements, during the construction process.

This CEMP includes the overall requirements as a 'Resource Management Plan', and which describes the overall requirement of key personnel, equipment required, materials and the general construction methodology. These aspects are addressed specifically in sections 8, 9, 11, 12, and 16 of this report - although other sections of this report do include resource management criteria, as there is some obvious overlap with the Environmental Management, and Health and Safety aspects of the proposal.

2.0 Site Location

Lands to Ardshanavooley, Killarney, Co. Kerry, Ireland.

Coordinates:

ITM: 494050, 591356

GPS: 52º, 03'52.12'' N, 9º, 30' 05.32'' W

The site is located within Residential planning zone.

(see figs 1 and 2 below)

3.0 Site Access

Site access will be via the existing road system, currently serving small residential estates, as per the map in fig 3, below. This is the access point that will be used for construction traffic, and will form the main access that will be used, upon completion of the development.

All construction traffic, including construction plant, cars, vans, trucks etc, will be provided with on-site carparking.

A traffic management plan is to be implemented, taking cognisance of the traffic route via the existing estate road.

All relevant construction signage and security will be implemented and the site entrance. (fig 4).
Controlled access to the site will be enforced, and only registered and authorised personnel will be permitted. Any visitor to the site, will be required to be 'sign-in' and sign-out', and will be accompanied by authorised personnel, to the site offices. PPE equipment will be provided to all visitors attending the site. No site operative will be permitted beyond the site offices, without a current 'Health and Safe Pass' (see Health and Safety Section)

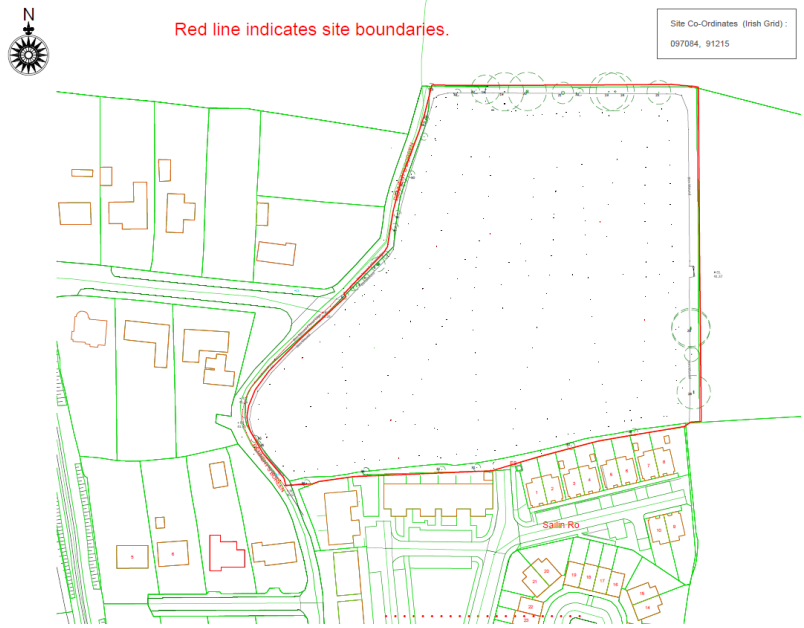

Fig 1 - Extent of Site, outlined in red. Site Area = 2.23Ha.
(Refer to Topographical Survey drawing (drwg No 91-24-0-001 Rev A)

Fig 2 – Aerial Photograph – Proposed Development Site Outlined in Red

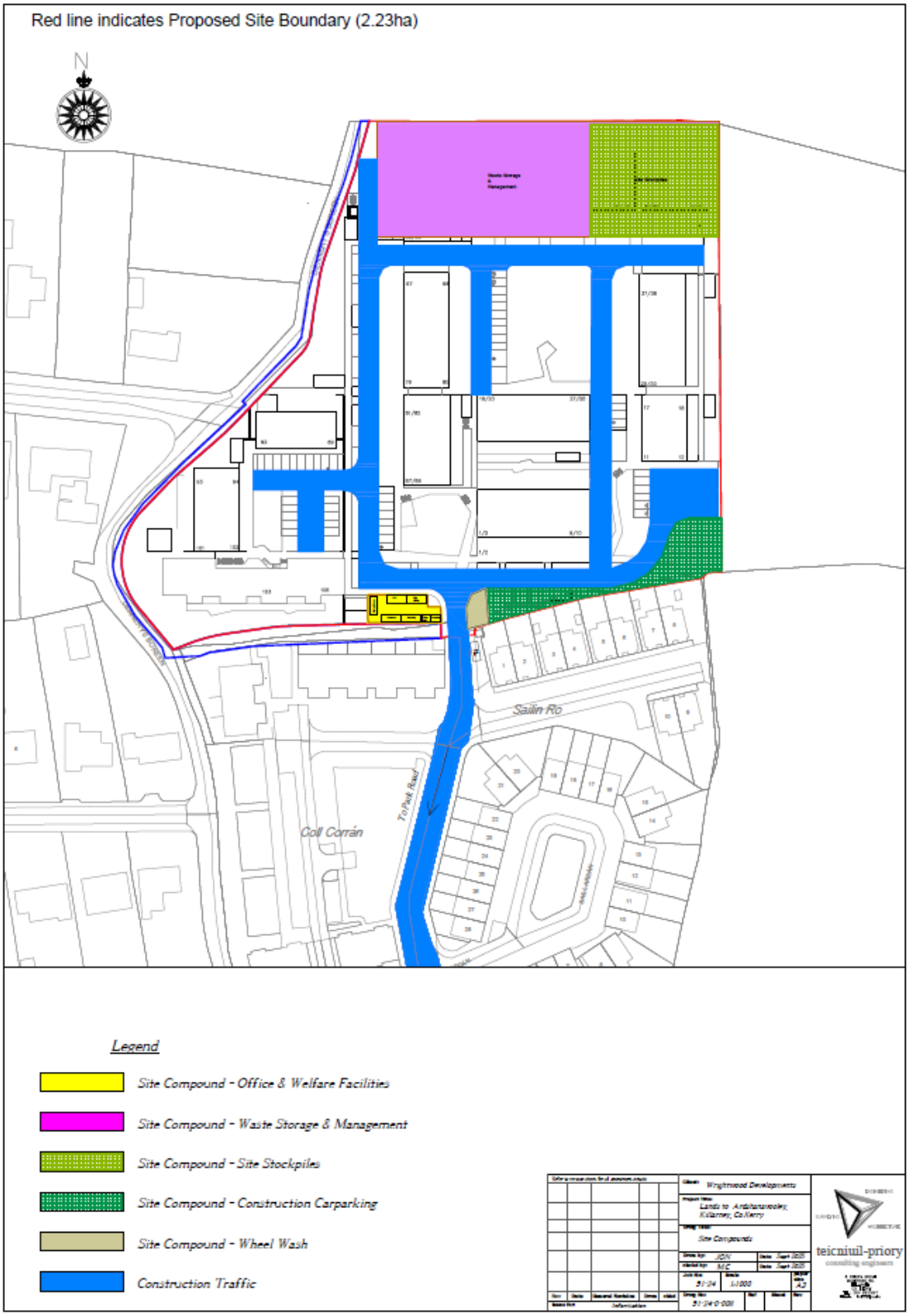

Fig 3 – Site access and internal site road network

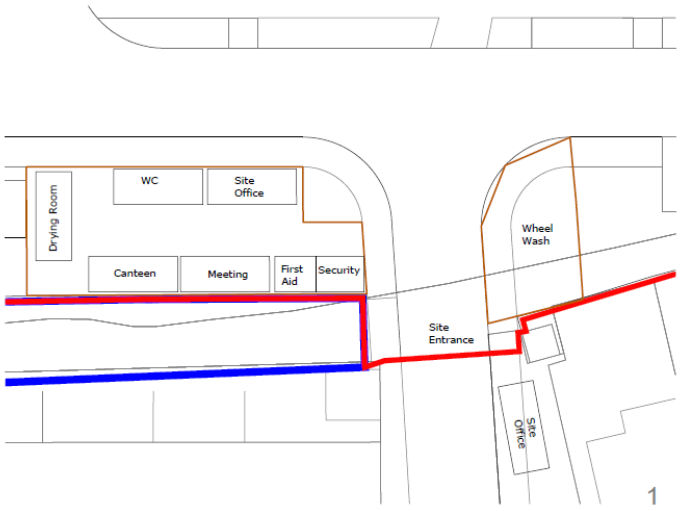

Fig 4 – location / arrangement of site offices and welfare facilities

4.0 Site Description

This site is located approximately 0.9km from Killarney Town Centre, and is in close proximity to various amenities – many within walking distance. Several small housing estates already exist to the South of the site. A proposed housing estate is also earmarked to the East of the site, under separate development works.

The site consists of existing grazing farmland. (habitat: GS2 – 'dry meadows and grassy verges' – 'Guide to *Habitats in Ireland – The heritage council)*, and is gently sloped, in a general North-to-South direction, presenting a gradual average slope of approximately 1:60. Clear boundaries are present; substantial earthen mounds exist, with some planted with mature trees, on the Northern and Eastern boundaries. A smaller earthen mound planted with a tree line is also present adjacent a small road on the Western boundary. A concrete panel fence-type structure exists to the South, forming the boundary of a previous housing development.

The extent of the site is outlined in red on the extracted topographical survey, in fig 1, below and on the aerial photograph shown in fig 2, below. (also see drawing register, for relevant drawings).

5.0 Development Description:

Development at a 2.23 hectare site comprising of:

1. Construction of a 124 no. dwellings in a mix of duplex, maisonette and apartment typologies comprising 16 no. 1 bed apartments, 6 no. 2 bed apartments, 16 no. 1 bed duplex apartments, 16 no. 2 bed duplex maisonettes, 33 no. 2 bed duplex apartments, 33 no. 3 bed maisonettes and 4 no. 3 bed terrace houses, all in building heights ranging from 2 to 4 storeys.

2. A total of 143 no. surface car parking spaces, including 4 no. car-share parking spaces, 6 no. visitor spaces, and 5 no. assigned Part M/accessible spaces.

3. Bicycle parking comprising of 272 no spaces in total, comprising 118 no. spaces within the private open space of ground floor residential units and 102 no. spaces within secure sheltered structures and designated secure bicycle parking areas, and 52 no. short stay/visitor spaces.

4. 3,636 sq.m of public open space, including arrival pocket park, central pocket park and amenity landscape areas (including 117 sq.m of play), grass lawns, kickabout areas, picnic areas and seating areas;

5. 956 sq.m of communal external open space, including seating areas, nature trails, and amenity grass lawns.

6. Additional environmental open space of 1,790 sq.m, including landscape buffers, protection and enhancement of existing hedgerows and trees.

7. A new vehicular, pedestrian and cyclist access from the existing estate road adjoining the site to the south.

8. Infrastructure works to serve the proposed development to include the internal road and footpath network, ESB cabinets/substations/switchrooms, site and external building lighting, site drainage works, hard and soft landscaping, boundary treatments, communal bin stores, and all ancillary site services and development works above and below ground.

The development site, measures c. 2.23 Hectares. A total of 124No dwelling units are proposed, giving a site ratio of 56units/Ha, along with relevant infrastructure, carparking, and amenity spaces.

Refer to Site layout Drawing for layout / arrangement of the proposal.

6.0 Associated Documents

This CEMP sets out the requirements regarding the implantation of relevant Codes of Practice and guidelines, procedures, management roles, and environmental responsibilities to be actioned.

The following specialist documents are applicable to this project;

- Planning Report – *Foundation (Planning Consultants)*
- Architectural Design Statement – *Graham O'Sullivan*
- Engineering Assessment and Drainage Design Report - *Teicniuil-Priory Consulting Engineers Ltd*
- On-Site Soil Infiltration Testing Report- *Teicniuil-Priory Consulting Engineers Ltd*
- Flood Risk Assessment – *Donal Moynihan*
- Landscape Report – *Gannon and Associates*
- Daylight and Sunlight Impact Assessment – *DKPI*
- Environmental Impact Assessment Screening Report – *Malone O'Regan*
- Ecological Impact Assessment - *Malone O'Regan*
- Arboricultural Impact Assessment – *Ciaran Keating*
- Traffic Impact Assessment – *MHL*
- Mobility Management -*MHL*
- Energy Statement – *DKPI*
- Archaeological Impact Assessment – *Aegis*
- Public Lighting Report – *DKPI*

And all relevant drawings, as per the Drawing Register.

7.0 Relevant Environmental legislation and Codes of Practice

Relevant Environmental Legislation includes, but is not limited to, the following;

- The Habitats Directive: Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora;
- The European Communities (Birds and Natural Habitats) Regulations, 2011 (as amended);
- Water Framework Directive (WFD): Directive 2000/60/EC of the European Parliament and Council establishing a framework for Community Action in the field of water policy (as amended);
- European Communities Environmental Objectives (Surface Waters) Regulations, 2009 (as amended);
- The Birds Directive: Council Directive of 2 April 1979 on the conservation of wild birds (79/409/EEC) (as amended);

The relevant Codes of Practice are cited in the references, at the foot of this document.

8.0 Resource Management Plan - Site Management / Key Personnel

Key Site Personnel				
Title	**Company**	**Contact name**	**Phone No**	**email**
Developer	Wrightwood Developments	Kevin O'Donoghue	872901215	info@wrightwood.ie
Site Manager	Wrightwood Developments	Kevin O'Donoghue	872901215	info@wrightwood.ie
Project Manager	Wrightwood Developments	Kevin O'Donoghue	872901215	info@wrightwood.ie
Senior Engineer	Teicniuil-Priory Consulting Engineers Ltd	Matt Clarke	064 66 31847	tpceoffice@gmail.com
Assigned Certifier	Teicniuil-Priory Consulting Engineers Ltd	Matt Clarke	064 66 31847	tpceoffice@gmail.com
Site Project Architect	Davide Mosca Design	Davide Mosca	873289356	davide@davidemoscadesign.ie
PSCS	Wrightwood Developments	Kevin O'Donoghue	872901215	info@wrightwood.ie
Health and safety Coordinator	Ayrton Group	Mary Keane	087 2403420	info@wrightwood.ie
PSDP	Teicniuil-Priory Consulting Engineers Ltd	Matt Clarke	064 66 31847	tpceoffice@gmail.com
Environmental Manager	Pending - TBC			
Development Liaison Officer	Wrightwood Developments	Tim O'Donoghue	872608548	info@wrightwood.ie

Developer Liaison

A Development Liaison Officer will be appointed to engage with local residents and the general community, should any queries arise, and as a contact point for exchange of information.

A notice will be affixed to the site entrance, informing of the contact name, phone number and email, of the Development Laision officer.

9.0 Resource Management Plan - Construction Programme

This will be a phased construction project. A Programme of Works will be issued by the Contractor, in relation to each of the following phases.

The duration of the works is anticipated to be 3 years, with each phase being completed in a designated timeframe. The following shows indicative time frames, per phase, pending full planning approval dates.

Phases	Building Block	duration (months)	Start date (approx)	finish date
1	K, L , M	20	01/05/2026	01/03/2028
2	A, C	15	01/11/2026	10/01/2028
3	J, H	15	01/05/2027	01/05/2028
4	B, D	15	01/11/2027	01/08/2028
5	E,F,G	22	01/07/2028	01/05/2029

These are shown in fig 5 – Construction phasing map.

Times of working

Hours of operation will be, as follows:

Monday to Friday ; 8:00am to 6pm
Saturdays 8:00am to 2:00pm
No working on bank holidays

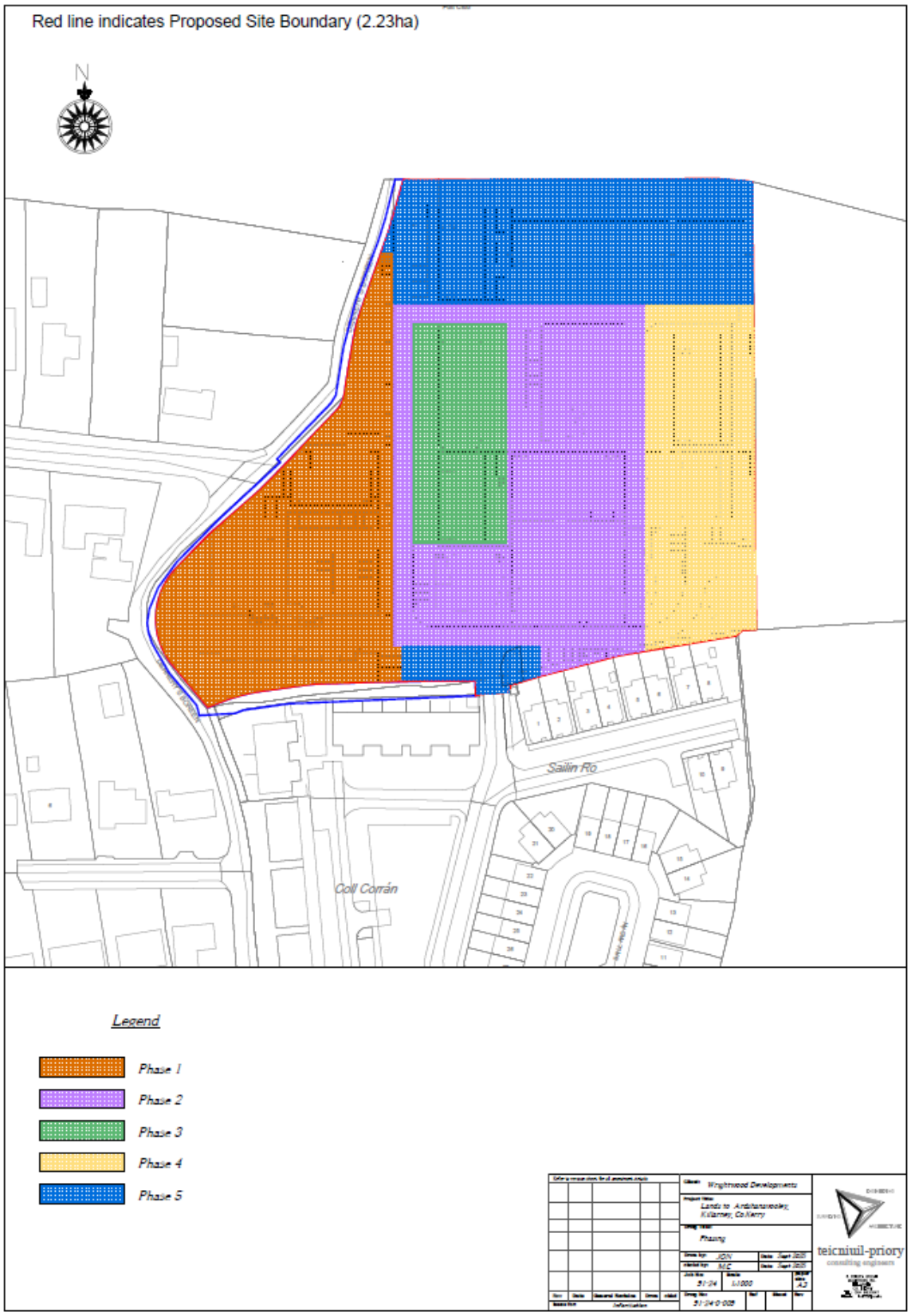

Fig 5 – Construction Phasing Map

10.0 Site Enabling Works

The following site enabling works are required, and shall be implemented;

Boundary fence / hoarding security

A PC concrete panel fence will be erected, on the East and West boundary. This fence will be c 1.8m high, and will form the finalised physical boundaries of the development, as completed.

The existing earthen mound on the Eastern boundary will be removed, prior to the erection of this Pre-cast concrete panel solid fence.

An existing PC concrete panel fence, at c1.8m high, exists on the southern boundary (ie adjacent existing dwellings) , and is to remain.

An existing palisade type fence, at 2.0m high exists at the Northern boundary (ie adjacent the 'pitch and put' course), and is to remain.

The site entrance (ie on the southern boundary) shall be provided with temporary steel mesh fencing, with a lockable/ restricted access gate, for controlled ingress to the site.

Identification of services on site

This is a greenfield site, and it is not anticipated that any underground services exist within the site. However, measures shall be implemented, nonetheless, to ensure no services exist underground, prior to excavations (use of CAT surveys / banksman employed). See Health and Safety section of this CEMP.

An overhead ESB cable does traverse the site in a north -south direction. This shall be located by the ESB, prior to works commencing. It is anticipated that these electricity cables shall be re-located underground, at the direction of the ESB – exact route to be yet confirmed.

Set up of site offices and welfare facilities

Site offices and welfare facilities shall be set up on site, as per site coordination drawings. welfare facilities shall include canteens, WC's and WHB's, and a first aid station. Lockable containers shall be provided for the storage of hand tools, survey equipment, etc.

Temporary Services

An adequate supply of potable water shall be provided, connected from the mains water, with agreement from Irish Water.

A temporary foul drainage connection, shall be provided, to discharge to the adjacent foul water manhole, at the site entrance.

A temporary electrical connection shall be sought and provide, in agreement with the ESB.

A temporary storm water network, shall be provided, to accept storm water from temporary structures, (eg site offices), and discharge to a temporary soakaway.

Set up of designated areas for materials storages

An enclosed area shall be provided to facilitate the storage of materials. A sheltered provision will be provided for any materials susceptible to weather damage.

An area shall be provided for the stock-piling of granular materials as required, including soil.

Set up of designated areas for construction plant / equipment storages

An enclosed area shall be provided to facilitate the storage / parking of Construction plant and machinery.

Construction access roads for plant and construction traffic

A network of construction access roads shall be provided within the site. The construction of these access roads shall be provided in conjunction with the relevant phasing of the project (see phasing below)

Excavation works

Prior to any excavation works, liaison with Environmental Consultant / archaeologist, shall be undertaken, and relevant direction shall be taken.

Security

A lockable and secure site entrance gate / fence shall be erected, with controlled access only.

CCTV site security cameras shall be erected.

11.0 Resource Management - Construction Works and Methodology.

The following summary of works will generally be required;

- Excavations (site strip and excavation of foundations. It is anticipated that strip foundations will be adequate, as per initial Soil Investigation Report)
- Construction of Foundations.
- Preparation / installation of required road network for construction traffic (enabling works)
- Installation of drainage / services as required
- Construction of Ground floor concrete slab(s)
- Construction of ICF walls
- Construction of 1st / 2nd /.3rd floors as required (in-situ concrete floors), depending on building unit design.
- Construction of RC in-situ stairs

- Construction of roof (generally pre-fab truss), and slate / tile finishes
- Window / glazing installation (PVC frame triple glazed units)
- 1st / 2nd fix electrical
- 1st / 2nd fix plumbing and heating
- Mechanical Ventilation and heat recovery installations
- General finishes / painting decorations, floor finishes
- Garden / hard landing completions
- Completion of road infrastructure, including drainage, services, and road /pavement finishes.

Sub-Structure:

Given the nature of the soil, being a 'sandy gravel' granular type, (see initial Soil Investigation report) and local experience and knowledge of the soil / sub-soil, strip foundations are anticipated. The exact specifications will be determined upon structural calculation, based on determined bearing capacity and loads applied to same – depending on building unit.

Concrete placement will be achieved by direct truck placemen, and possibly, a truck mounted pump. Relevant re-bar / mesh will be placed into the foundation trench, prior to concrete pour.

The temporary construction haul road is to be provided as a prelude to substructure works being carried out. (enabling works)

Super-Structure:

The external walls will be constructed from Concrete Integrated Form (IFC). The insulated 'blocks' will be laid, to a designated height, and appropriately, braced, prior to concrete fill. Concrete placement will be achieved by direct truck placement, and possibly, a truck mounted pump.

The roofs shall generally be of a pitched 'A frame' form, and it is anticipated they will be constructed from pre-fabricated timber trusses.

Delivery of these trusses will be a day or two, prior to use, and handled by teleporters and/or mobile crane.

Roof covering will be of an artificial slate or concrete tile finish. These shall arrive to site on 'crates' which shall be delivered as and when required.

It is anticipated that the floors (ground floor and subsequent upper floors) shall be of a concrete in-situ method. Reinforcing bars and mesh shall be 'crane lifted' onto the relevant upper floors, and manually installed in place by the steel fixers. Concrete placement will be achieved by direct truck placement, via a concrete pump.

Fenestration will be delivered to site, when ready, and at the appropriate level of construction. Mobile crane and /or teleporter will be required.

Fully certified ('ticketed') scaffolding will be placed around the building, which allows the opportunity for multi-task operations.

1st / 2nd Fix and Completion

This phase usually leads to a short-term increase in resources, as generally the number of sub-contractor on-site increase. Full and adequate carparking is provided within the overall site area, and adjacent the temporary site office. (see site coordination plan).

12.0 Resource Management Plan - Construction Plant and Equipment

The construction plant and equipment likely to be used during the construction phase of the project are included in the table below. It should be noted that this list is not exhaustive.

Likely Construction Plant and Equipment Required

ACTIVITY	POSSIBLE PLANT / EQUIPMENT REQUIRED
Site Clearance and Excavations	Excavators (20Tonne, 13Tonne, and 3Tonne Machines) Dumpers (from 5Tonnes capacity to 1tion Grader Roller
Construction of Building	Tracked Excavators (20tonnes to 1Tonne mini diggers) Teleporters to 18m reach Mobile Crane Dumpers (5Tonnes to 1 Tonne) Tractor Cement Mixers
Site Reinstatement and Landscaping	Tracked Excavators Tractor Site Dumpers Rotavator Tarmacadem laying Mechanical sweeping machinery

13.0 Infrastructure Works

Pavement / Road Construction

The construction access roads, shall generally reflect the proposed road network, as the proposed sub-base and capping layer.

Upon completion and installation of the services (FW / SW drains, mains water, and Electrical installations), and upon approval from Irish Water, the tarmacdam road system shall be laid. This shall generally be a 2No layer, of 40mm surface course and 60mm based course, on a stone sub base.

Some areas, will shall be provided with a cobblelock finish, rather than tarmacdem, upon completion. These cobblelocks shall be constructed as a permeable surface, to allow rainwater infiltration, as per the stormwater SuDS, design (See Engineering Assessment Report, and relevant drainage drawings)

Foul water

A pre-connection agreement has been approved by Irish Water.

The foul water shall be installed to Irish Water Specifications, as detailed in the relevant drawings. The Developer / Engineer shall liaise with Irish Water to facilitate relevant on-site inspections with Irish Water field engineer. No backfilling shall take placed prior to approval.

Water Mains Supply

A pre-connection agreement has been approved by Irish Water.

The water mains shall be installed to Irish Water Specifications, as detailed in the relevant drawings. The Developer / Engineer shall liaise with Irish Water to facilitate relevant on-site inspections with Irish Water field engineer.

All coordinates to welded joints on the water main shall be logged, as per Irish Water requirements.

No backfilling shall take placed prior to approval from Irish water.

Electrical / Telecommunication Systems

All electrical installations to be installed to ESB specifications and requirements.

Public Lighting

Public lighting to be installed as per public lighting design drawings.

Storm water / *SUDS*

SuDs methods are to be implemented, for storm water disposal, as per Suds design and drawings.

The suds methods proposed are

- Soakaways
- Bio-retention area
- Detention basin
- Tree pits
- Permeable paving

The soil conditions and configuration of the site allows complete infiltration of storm water, which is the preferred method as per the Suds Manual, rather than controlled discharge from the site, via flow control devices.

PVC storm water piping is shall be used to convey storm water from the building units, to soakaways or bioretention areas. Direct infiltration techniques shall be used for the permeable surfaces (eg 'cobblelock' and the tree pits.

The design of the Suds components has been considered using a 1:100 year storm return period and a 20% climate change factor.

Site Reinstatement and Landscaping

These works include the following:

- Removal of any temporary hardcore surfaces
- Removal of any remaining storage material
- Removal of construction plant
- Removal of equipment and signage
- Re-seeding and replanting of exposed soil
- The planting of trees and shrubs as per landscaping plan
- Removal of silt control measures.

14.0 Earthworks and Excavations

Various trial pits and on-site soil investigation and previously taken place by this Office. (See Soil Infiltration Report).

This site is a greenfield site, and presents with good topsoil. Approx 7000m3 of bulk excavation will be required to remove topsoil, and an average determined depth 350mm.

All vegetation, which is predominately grass, and which has a shallow root system, shall be stripped from the site, and carted away. The remaining top soil shall be stockpiled, for re-instatement where required (eg gardens, amenity areas etc). Approximately 1500m3 to 2000m3 of topsoil shall be removed from the site, for re-use elsewhere.

15.0 Hazardous Materials / Contamination.

Due to the nature of this greenfield site, no existing hazards or contamination within the soil, is anticipated; it is highly unlikely, during the course of excavations, that any contaminated material will be found on site. (See soil infiltration Report). However, if any contamination is found, appropriate measures are to be taken in compliance with relevant waste legislation, and the relevant authorities notified where required.

During the course of construction, hazardous substances typical of construction in general, will be encountered on site. These will include cementitious materials, and hydrocarbons (fuels, oils, paints etc),and will be dealt with according proper and robust Construction and Environmental Controls

16.0 Resource Management Plan - Construction management and Controls

Project Roles / Responsibilities

The Developer / Project Manager shall be responsible for applying and updating this CEMP, throughout the project, to completion. The Project Manager shall ensure that correct and proper induction of all site operatives will be applied, regarding Construction site management and Environmental protocols to be employed. (see Health and Safety)

Construction Traffic

Ingress to the proposed site, shall be via the existing public road, Site controls shall be implemented at the front security gate, and control station.

A Construction Traffic Management Plan (CTMP) shall be prepared for these works. This will ensure that the impact of the proposed construction activities, upon the public, site visitors, and site personnel, are minimised, and that a safe environment is maintained.

The CTMP shall fully comply with;

- Department of the Environment Traffic Signs manual (Chapter 8)
- Guidance for the Control and Management of Traffic at Road Works
- Design Manual for Roads and Bridges
- Design Manual for Urban Roads and Streets (DMURS)

The coordination of traffic management shall be carried out by the developer / project manager, and Project Supervisor for the Construction stage and will include:

- Application and awareness of the Health and Safety file and requirements
- Coordinated access
- Controlled deliveries
- Controlled and supervised access for lorries / HGV's and construction plant
- On-site car and van parking controls (on-site staff and visitors)

A road cleaning regime shall be set in place.

A wheel wash shall be provided – No mud, debris, concrete etc , shall be permitted on to the public road surface. A road sweeper shall be employed as required. (eg road sweeper vacuum vehicle). A designated person will be responsible for regular inspections of the public road and area around the main gate access, to ensure a clean, and dust-free road and access.

Site Compound

A site compound shall be provided as per fig 3 and 4 - construction coordination site plan.

This compound shall be provided with an enclosed security fence, and will be provided with appropriate temporary services, including foul and storm drainage, potable water and an Electricity supply. CCTV camaras shall be installed.

The following will be including within this designated site compound;

-Site offices
-welfare facilities (canteen, WCs with WHBs, first aid office)
-On-site car parking
-shelter for the storage of materials susceptible to weather damage.
The shortage of construction plant
The storage of general / granular materials

All fuel storage areas shall be bunded and fenced -off.

Materials and construction components will be delivered to site as and when required, on a 'just in time' basis, to prevent excessive build-up of items in storage.

Adequate lighting will be provided around the compound, and generally around the working site, pending on the construction phase being undertaken. All lighting shall face away from existing residential developments, and away from ecological corridors (ie boundary / trees). Light 'spillage' to be minimised/.

Security Arrangements

The Contractor is to ensure that the site is secured. Only authorised personnel will be permitted to enter the site. The site is to be secured by a fence barrier, with appropriate signage.
Security cameras will be installed at the site, carparking, storage area, and site office.

Equipment and vehicles on-site, left overnight, shall be locked, and have keys removed, and stored in a designated lockable location.

A designated person will be appointed to monitor the security aspect of the site.

Public Health and Safey

The Developer shall ensure that all Health and Safey requirements and legislation is implemented.

All construction staff will be required to attend an induction on the workings of the site, site management, Health and Safety requirements, and site logistics.

Public safety shall be ensured by the implementation of a Construction Management Traffic Plan, along with the contents of this CEMP, and the requirements of the Safety, Health, and Welfare at work Act 2005 (as amended), and the Safety Health and Welfare at Work (Construction) Regulations 206*as amended) . (see Health and Safety section)

Emergency Responses

The Developer / Project Manager shall maintain an emergency response action plan, which shall be developed in accordance with the site emergency plan .

All emergency situations are to be considered, which included, but are not limited to;

- Fire,
- Oil / diesel / general hydrocarbon spills
- Flood
- Injury to personnel

Appropriate site staff will be designated as first aiders, fire marshals, and environmental response protocols.

First aiders to have minimum Occupational First Aid certification Level 5.

17.0 Health and Safety

All site works are to be in accordance with the requirements of the *Safety, Health and Welfare at Work Act 2005*, as amended and the *Safety, Health, and Welfare at Work (Construction) Regulations 2013 and 2020.*

As required by the aforementioned Regulations, a Project Supervisor for the Design Process (PSDP) has been appointed. The person appointed PSDP is Matt Clarke (Teicniuil-Priory Consulting Engineers Ltd). The appointment of the Project Supervisor for the Construction Stage (PSCS) is to be fulfilled by the Developer prior to work commencing. The PSCS / Health and Safety Coordinator, will be responsible for compiling and updating the Safety file, which will be maintained within the site office. The PSDP will issue the Pre-liminary Health and Safety Plan, prior to the commencement of construction. The AF1 and AF2 forms will be submitted to the Health and Safety Authority at the appropriates stages.

Prior to work commencing, all sub-contractors and site personnel will receive induction training.

All construction operatives will wear the following Personnel Protective Equipment (PPE) as a minimum requirement.

- Hard hat
- Hi- vis coat or vest
- Safety boots (steel toe cap)
- Eye protection, where identified for specific activities
- Ear Defenders where identified for specific activities.

- Gloves, where identified for specific activities

Construction Signage and Labelling

Environmental signage and labelling is to be used to inform site personnel of environmental requirements and restrictions for he construction, and to prompt good environmental practice on site.

Construction method Statement

Prior to Construction commencing, the Contractor would prepare a Construction Method Statement. The Contractor will maintain a register of all method statements for the project.

18.0 ENVIRONMANTAL MANAGEMENT AND CONTROLS

An Environmental Management System (EMS) is to be implemented by the Developer. The EMS would take into account any conditions, comments, or recommendations issued by the Planning Authority / Kerry County Council.

The contractor will implement the following environmental management procedures:

- Awareness and Training
- Environmental Emergency Response
- Recording keeping, Auditing and Monitoring
- Environmental Complaints Procedure
- Protection of Flora and Fauna
- Protection of soil
- Protection of Groundwater and surface water
- Chemical and Hazardous Materials management
- Noise Management
- Dust management
- Water management
- Waste management

This CEMP, as a live document, will be updated by the Developer / Project manager, to ensure that all environmental management procedures have been addressed.

All site personnel are to be made aware of the requirements of the CEMP, and are to cooperate the Developer / Project manager.

Prior to works commencing, this CEMP should be communicated to all site personnel, as part of the training induction. Training will also address any incidents that could have a potential to cause environmental pollution. This will be part of the 'toolbox' talks, and will address the following issues:

- Water Pollution
- Spill Control
- Noise Pollution
- Dust Pollution
- Surface Water and Ground Water protection measures

ENVIRONMANTAL COMMITMENTS

Cognisance is taken that construction works, without a correct environmental strategy and implementation, have the potential to adversely impact the environment. Therefore, the Developer / Project Manager shall ensure that construction works will be rigorously undertaken with the requirements of the CEMP and relevant legislation. Compliance with the CEMP will be mandatory by all on-site personnel.

The Developer/Project Manager, will be committed to, and have the responsibility, for the controls and mitigation measures regarding the following:

- Ground water and surface water control
- Soil contamination control
- Noise and Vibration control
- Traffic control
- Waste management control
- Chemical and hazardous materials management
- Terrestrial biodiversity Protection
- Invasive Species control

Coordination in the event of Environmental Incidents

In the event of an Environment Incident, the Developer/Project Manager would follow the Emergency Management plan. The Developer / Project Manager, may be required to contact any relevant third party as appropriate, including;

- Emergency Services
- Kerry County Council / Environmental dept, or other
- National parks and Wildlife Service
- Inland Fisheries Ireland
- Environmental Protection Agency

19.0 ENVIRONMANTAL IMPACTS AND MITIGATION MEASURES

Surface water, ground water and soil impacts

The main potential impacts, during construction upon surface water groundwater and soil quality, would be the release of suspended solids during soil disturbance, the release of hydrocarbons, and uncured concrete. Uncured concrete, if entering surface water, would cause the pH to be altered locally, causing an adverse impact on aquatic flora and fauna.

Suspended Solids (SS) can become entrained in surface water run-off and could affect aquatic habitats, flora and fauna, through deposition.

Hydrocarbons, from construction plant and equipment (fuels and oils) may affect water quality, resulting in toxic conditions for aquatic flora and fauna.

Mitigation measures to be employed:

- The contractor is to adhere and comply with standard construction best practices, and comply with "*Control of water pollution from Construction Sites; guidance for consultants and contractors*" (CIRIA) and "*Control of Water Pollution from Construction Sites – Guide to Good Practice"* (CIRIA)
- Cognizance is to be taken of the "*Guidelines on Protection of Fisheries During Construction Works in and adjacent to Waters" (*Inland Fisheries Ireland)
- Daily visual inspections are to be undertaken of the site to ensure no surface water leaves the site, thus controlling silt.
- Any spoil generated is to be only stored temporarily. A designated spoil area is to be established. spoil heap is to be covered
- Any manhole covers and storm water gullies are to be protected by silt blankets / mats. None are anticipated on site, during construction of the development
- Silt containment trenches are to be excavated around the rear and sides of the site (ie downward gradient)
- Silt control measures are to be implemented as required.
- A 'wheel wash' is to be provided
- Excavations are to be planned outside the period of heavy rainfall, to limit suspended solids becoming entrained with surface water run-off.
- All plant and machinery are to be maintained is good working order and are to be inspected regularly.
- A designated area for the storage of hydrocarbons would be established by the contractor and inspected on a daily basis.
- Spill kits are to be available on site
- Relevant site personnel are to be trained in spillage control.
- Excavated materials are to be stored on sited and reused in reinstatement actives.
- Fill and aggregate material are to be obtained from local, registered quarries.

Air Quality Impacts

Particulate matter in the range 1 – 75 microns diameter is defined as 'dust'. Particles less than 1 microns in diameter are classified and smoke or fumes.

The primary air quality impact associated with construction activities is dust. Excavation operations, and track construction, may generate dust – generally in drier conditions. The extent of generated dust and dust dispersion depends on type of soil, construction activity and meteorological conditions (rainfall, wind speed and direction).

Construction vehicles, transporting sands, gravels and concrete may generate construction dust.

The effect of construction dust would not be significant following the implementation of standard working practices and the following mitigation measures.

Mitigation measures to be employed:

- Cognizance to be taken of the document " *Assessment of dust from demolition and construction 2014"* (Institute of Air Quality Management)
- Handling processes and storage of materials to take cognizance of minimising exposure to wind.
- Long term storage of material to be avoided.
- During transportation of materials , covers / tarpaulins should be used to prevent dust
- The public road at the entrance to the site, is to be inspected daily, and after every delivery, for cleanliness.
- Regular inspections to be taken, of the site boundaries to ensure and monitor effectiveness of dust controls.

In very dry weather, the following additional measures are to be taken;

- 'dampening' / water misting should be used where required.
- Stockpile of excavated soil and exposed surfaces to be dampened.

Noise Impacts

Construction work can be noisy, although it is only a temporary duration..

The type of works involved in this project include the following;

- Excavations, 'cut and fill', site levelling
- Foundation pour, cement mixer deliveries
- General construction works on superstructure

In the absence of documents relating to permissible noise levels, of construction sites in Ireland, reference is made of the National Roads Authority (NRA) "*Guidelines for the Treatment of Noise and Vibration in National Road Schemes"*

The NRA considers the following noise levels acceptable;

Days / Times	$L_{Aeq\ (1hr)}$ dB	$L_{pA\ (max)slow}$ dB
Monday to Friday (07:00 to 19:00hrs)*	70	80
Monday to Friday (07:00 to 22:00hrs)*	60	65
Saturday (08:00 to 16:30hrs)*	65	75
Sundays and Bank Holidays (08:00 to 16:30hrs)*	60	65

* Note: proposed working hours for this project are 8:00am to 6:00pm Mon – Fri, 8:00am to 2:00pm Saturday. No working will take place on Sundays or Bank Holidays.

Mitigation measures to be employed:

- Adherence is to be made with the "*Code of Practice for Noise Control on Construction and Open sites*" (BS 5228:part 1) and "*Environmental Good Practice on site"* (CIRIA 2015)
- Plant and machinery that will be used on site will comply with the EC (Construction Plant and Equipment) Permissible Noise Levels Regulations 1988 (S.I No 320 of 1988). All noise producing equipment will comply with S.I No 632 of 2001 European Communities (Noise Emission by Equipment for use outdoors) Regulations 2001.
- All Construction activities are to take place between 8:00am to 6:00pm, Monday to Friday and 8:00am to 2:00pm on Saturdays, only.
- Site deliveries to be only during the aforementioned working hours.
- No plant used on-site would be permitted to cause an on on going public noise due to noise.
- Regular vehicle and construction plant checks and maintenance are to be carried out.
- Relevant plant and vehicles are to be fitted with mufflers / silencers
- Construction plant to be turned off when not in use.

Traffic Impacts

Access to the site is from an existing residential road.

Traffic impacts may arise from;

- Delivery of vehicles and plant
- Delivery of materials
- Staff, sub-contractors and visitors, to and from the site.

Mitigation measures to be employed:

- Deliveries will only be scheduled during working hours: 8:00am to 6:00pm, Monday to Friday and 8:00am to 2:00pm on Saturdays, only.
- The contractor is to coordinate all deliveries. Suitable site entrance signage is required.
- Material not to be delivered o site, until required
- Deliveries to be controlled and supervised.

Waste Management Impacts

The following categories of waste may be generated during construction of the project:

WASTE TYPE	EWC CODE	ORIGIN
Concrete	17 01 01	Waste concrete may arise due to surplus concrete from pouring activities.
Wood	17 02 01	Wood waste may arise during construction works, including building and shuttering works, due to damaged / defected wood, off-cuts and surplus wood.
Glass	17 02 02	Glass waste may arise due to damaged / defected glass and accidental breakages.
Plastic	17 02 03	Plastic waste may arise due to damaged / defected products.
Metals (including alloys)	17 04 01 - 07	Waste metal may arise due to damaged / defected metal, off - cuts and surplus metal.
Soils and Stones	17 05 04	Excavated soils and stones waste would arise during site excavations and earth-moving activities.
Insulation materials and asbestos containing construction materials	17 06	Waste may arise due to damaged / defected insulation panels and off-cuts.
Biodegradable waste	20 02 01	Green waste would arise during site clearance works, with the removal of existing vegetation at the site.

Small volumes of the following, may be generated, during the construction process;

- Waste Oils and Liquid Fuels -EWC 13 02 and EXC 13 07
- Waste from Electrical and Electronic Equipment – EWC 16 02
- Cables – EWC 17 04 11
- Paints - EWC 20 01 28
- Wood Preservatives EWC 03 02
- Batteries – EWC 16 06

Wastes from the following EWC fractions, may be hazardous;

EWC 03 02, EWC 13 02, EWC 13 07, EWC 16 02, EWC 16 06.

Any waste generated is to be managed by the Contractor, in order of priority in accordance with Section 21A of the Waste Management Act 1996, as per the following ‘waste hierarchy’;

Mitigation measures to be employed:

-Coordinated and controlled removal of waste from the site.
-Skips / bins etc to located within approved areas
-Any hazardous materials would be stored separately from non-hazardous waste
-Where waste fuels and oils are generated, they will be stored in a bunded container.
-The Developer will be responsible for arranging the collection and transport of waste materials off the site, and all waste will be disposed of at a suitable licenced waste facility.

Waste prevention and minimisation is the responsibility of the Developer, with the implementation of the following;

- Careful and efficient ordering of materials, to reduce stockpiling and surplus materials
- Materials to be ordered in the appropriate sequence of works
- The correct and protected storage and handling of materials, to minimise damage (mechanical damage, water damage, etc) to materials
- Off-site removal of uncured concrete back to batching plant
- Reusing shuttering works
- The reinstatement of excavated soil.

Inert wastes will be used as infill material where possible (although not under foundations)
- Concrete (EWC 17 01 01)
- Soils and stones (EWC 17 05 04)

Wastes generated on site are to be managed by the Developer, in order of priority, in accordance with section 21A of the Waste Management Act 1996

Waste Materials:

Concrete, Stone, tiles, ceramics:

Surplus intact concrete blocks and stone are to be removed off site, for use elsewhere.

Damaged concrete blocks, and surplus tiles, ceramics, will be generally crushed and used for ground fill material, where suitable. Otherwise, these material s will be sent for recycling.

Timber:

Construction timber to be reused for shuttering where possible. Uncontaminated timbers (eg no preservatives) are to be removed form site, and used elsewhere. Contaminated wood, is to be disposed of, within a licenced facility.

Metals:

Where any metal cannot be re-used, metals shall then be recycled.

General recyclables:

These materials include, paper plastics, packaging etc. These are to be disposed of within a recycling facility.

Glass:

Any broken glass is to be removed for recycling.

Green waste:

If not possible to reuse onsite, then green waster to be sent for composting

Hazardous materials:

Hazardous waste must be managed in compliance with the Waste management (Hazardous Waste) Regulations 1998 and 2000. Very small quantities of this waste are expected, such wastes including;

- Fuels and oil,
- Batteries
- Paints / varnishes
- Sealants.

All hazardous wates are to be labelled and stored in bunds were appropriate and stored separately from non-hazardous waste. All hazardous wastes are to be taken to a licensed facility.

Waste Electrical and Electronic Equipment (WEEE):

This waste is to be stored separately from other waste, and covered over. Note that WEEE can contain batteries, and as such, would be considered hazardous waste.

Records of waste disposal:

Records of waste disposal should be kept, detailing type of material, disposal methods, dockets from licensed facilities, for disposal or recycling .

Chemical and Hazardous Material Management:

Concrete

Where possible, the use of pre-cast concrete is to be used. As such, precast concrete slabs are to be used for the construction of the first floor.

It is expected that foundations will be 'strip;' foundations, and that in-situ concrete will be used for the floors and walls (IFC construction).

The following is to be implemented;

- Delivery and pouring of concrete to be supervised
- Pouring of concrete to be avoid during expected heavy rainfall
- Shuttered formwork to be constructed around sides of raft (ie no spillage)
- Surplus concrete should be returned to the batching plant
- Wash-out facilities and wheel wash is to be provided

Hydrocarbons

The following is to be implemented

- All construction plant and machinery to be regularly maintained and inspected (no leaks)
- Any fuels of oil is to be stored in accordance with EPA regulations for the storage of these materials. They are to be stored within a bunded area at least 110% of the volume of the material
- A designated waste storage area will be provided
- Any deliveries of fuels are to be supervised
- Spill kits are to be made available on site.
- The contractor is to ensure the relevant site staff are trained in spillage control
- Where any construction plant shows fuel or oil leakage, operation with that plant must cease immediately, and the plant taken out of service for repair.

.Excavated materials:

The following is to be implemented for the handling and storage of excavated materials;

- Spoil is only to be stored on a temporary basis. A designed soil area is to be established, away from any drainage system
- Spoil piles are to be covered
- Silt fencing is to be provided around spoil areas
- Spoil to be re-instated, when appropriate.

.Emergency Response Plan

An emergency response Plan is to be prepared by the Contractor would covers all risks, including the following

- Spillages
- Fire
- Explosions
- Accidents

Designated site staff are required to be appropriately trained as first aiders, fire safety supervisor, and spill response personnel.

Monitoring and Auditing

The Developer will appoint an Environmental Health and Safety Officer. The EHS is to have relevant training and experience in this field.

The EHS Officer will be on-site and undertake regular inspections of plant, operations and procedures. The officer will carry out audits on a weekly basis, to monitor the environmental performance of the site, and ensure that all activities are undertaken correctly, and as per this document. The following inspections will be undertaken on a daily basis;

- Assessment of the ingress / egress to the site, and the public road
- Assessment of the designated waste storage area
- Assessment of Construction Plant and machinery
- Assessment of silt containment measures
- Assessment of operations that may potential generate dust
- Assessment of spoil area

The EHS officer would be responsible for maintaining an environmental register, to be kept on-site.

Any non-compliance issues shall be reported immediately to the project manager.

Terrestrial Biodiversity Impacts

Any construction process has the potential to effect terrestrial biodiversity, through loss of habitat, disturbances due to human activity, noise, dust, light pollution.

The construction phase of the development would not result in a loss of any habitat of significance. The Development site, and any adjacent ancillary use (plant , material storage etc) is confined to amenity grassland habitat (GA2),

The construction phase would not result in a direct loss of ecologically valuable habitats.

Dust emissions may arise during construction activities, which may have the potential to impact photosynthesis, respiration and transpiration processes of fauna. However, given the phasing of development, and the transient nature of the construction works, the impact of construction dust is not significant.

Construction Noise has the potential to disturb fauna. However, given the phased nature of development and the transient nature of the works, any impact is not significant. No construction works will take place outside of normal working hours.

Mitigation measures to be employed:

- No construction works are to be carried out, outside normal working hours.
- In the event of any protected fauna species be found during the construction works, an officer of the NPWS is to be notified.
- No construction works are to be carried out, in the hours of darkness
- No light 'overspill' from the site shall be permitted .

20.0 Conclusion

This Construction Environmental Management Plan (CEMP) sets-out the requirements for good site management and demonstrates the commitment to good environmental practices during the proposed development. It is intended that these requirements will be implemented by the Developer in joint consideration with the Project Manager, with the joint aim to reduce, and preferably eliminate all and any potential environmental impacts, during the course of Construction.

This CEMP is considered a 'live' document and is to be reviewed and updated as required and as necessary.

Signed: _____ _____

Matt Clarke MCIOB
Chartered Construction Manager

Date 18-12-2025

References

CIRIA (2015) C741 Environmental Good Practice on Site. (Fourth Edition).

CIRIA (2002) C532 Control of Water Pollution from Construction Sites – Guide to Good Practice.

Department of Environment, Heritage and Local Government (2006) Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects .

BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites - Noise;

BS 7385: 1993 Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration;

Guidance on Soil and Stone By-products in the context of article 27 of the European Communities (Waste Directive) Regulations 2011, Version 3 (EPA 2019);

Environmental Protection Agency (2002) European Waste Catalogue and Hazardous Waste List.

Fossitt, J.A. (2000) A Guide to Habitats in Ireland. Kilkenny: The Heritage Council.

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